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Vol. XXV. No. 4.

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(Courtesy of the Wisconsin Natural History Society.)

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

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George Williams Peckham, M.D., LL.D.

1845-1914.

(Portrait, Plate VI.)

Fährt der Blitz aus Wolkenmitte,
Schlägt er wohl die stärkste Eiche;
Tritt der Tod in unsre Mitte,
Schlägt den Stärksten er zur Leiche.

—*Musikantenfahrt.*

On January 10, 1914, Milwaukee's circle of nature students lost one of its most prominent members through death. Latent heart trouble, with an attack of angina pectoris as the immediate factor, ended the life of Dr. George Williams Peckham, patriot, educator, scholar and scientist.

Dr. Peckham was born in Albany, New York, on March 23, 1845. In 1853 he came to Milwaukee, where he attended the public schools and proved himself both mentally and physically

a leader of men. At the outbreak of the Civil War he wished to join the Union ranks, but it was not till 1863 that parental consent was obtained. Within a month after his enlistment he was made a sergeant, and later fought with such personal valor in an artillery regiment, that he was made a first lieutenant at the age of 19 and placed in charge of a battery.

After the war he went to Antioch College, in Ohio, and later to the Law School in Albany, New York, where he was admitted to the bar. In 1870 he enrolled in the medical course, at Ann Arbor, Michigan, being awarded the degree of Doctor of Medicine in 1872.

Fitted for both the professions of law and medicine, Dr. Peckham decided to follow neither of the two, but took up the teaching of Biology in the East Division High School, then the only one in Milwaukee.

In 1880 he married Elizabeth Gifford; and from that period date practically all of Dr. Peckham's researches, most of them collaborations with his devoted wife. Three children, now living, proved the blessing of their union.

About 1888 Dr. Peckham was appointed principal of the high school in which he taught. Four years later, in 1891, he was made Superintendent of Public Instruction, which office he held till 1897, when he accepted the office of Director of the Milwaukee Public Library, where he remained till his retirement, in 1910.

In dealing with the work of Dr. Peckham, we cannot separate therefrom the work of his wife and collaborator. From the time of their marriage these two are inseparably linked in all phases of their work, in their researches, in their travels, in their very thoughts. Scientifically, their researches followed two definite lines—each, in a way, logically the outcome of the other, that of psychology of spiders and wasps, and that of taxonomy of spiders.

In taxonomy the Peckhams dwelt exclusively with the Attidae-group of spiders; the first of their many papers on the subject appeared early in the eighties and was followed by annual or biennial contributions of various length, the chief

of which appeared in the *Proceedings,* the *Occasional Papers* and the *Bulletin of the Wisconsin Natural History Society,* and in the *Transactions of the Wisconsin Academy of Sciences, Arts and Letters.*

The earliest contribution on what may be broadly termed "Animal Psychology" appeared about 1883, in the *Journal of Morphology*—a brief treatise on mental powers of spiders. This was followed by several minor contributions in the publications of the Wisconsin Natural History Society, on both wasps and spiders, a larger treatise on Sexual Selection and Protective Resemblance (1890), and finally, by the epoch-making work, "On the Instincts and Habits of Solitary Wasps." *Bulletin No. 2, Wisconsin Geological Survey,* pp. 4 & 245, 14 pls., 1898.

It is upon this last-named work that the Peckhams' chief claim to fame rests. Based upon years of difficult and laborious observations, it bore at once the impress of scientist, scholar and poet: the scientist analyzed, the scholar synthesized, and the poet idealized. Just as the "Origin of Species" has its fixed place as a classic of Biological Science, so the Peckhams' "Habits of Solitary Wasps" bids fair to become a classic of, at least, the psychological phase of animal study.

Before this, scientific recognition had come to Dr. Peckham in the form of the presidency of the Wisconsin Natural History Society and of the Wisconsin Academy of Sciences, Arts and Letters; in 1896, the University of Wisconsin honored him with the degree of Doctor of Laws.

The trait of "nature student" dominated in Dr. Peckham's life. To this he sacrificed the careers of lawyer and physician; to this he sacrificed his vacations and what leisure hours he could spare from his arduous duties. Dr. Peckham, as the writer knew him, was a small man, somewhat bent with age, rheumatism and the close application necessitated by his myopia. The scholarly stoop, the silvery white hair, and the moderate gait impressed everyone as attributes of a man who has made his mark on the world. On public or semi-public occasions the thoroughness and breadth of Dr. Peckham's infor-

mation was surprising, even as the modesty and moderation with which it was put forth won him innumerable friends. Amiable, moderate, modest, kindly and scholarly,—in these words his personality is best described.

There is one aspect of his work which is probably very little known, or if known, appreciated. This is the literary aspect of his work. "For literary attainment among modern writers I look to Dr. Peckham," a well-known professor of English has said to the writer. "For clearness, elegance and simplicity of style, combined with lucidity and aptness of diction, Dr. Peckham merits a place among the best of modern literary men, and certainly one of the very best among scientific men."

With his retirement, in 1910, Dr. Peckham practically ceased his scientific labors. It was then his intention, as stated repeatedly to the writer, to devote all of his time to his favorite studies, but the revolutions in Mexico interfered with his planned investigations in that country, and his severe rheumatism would not permit much outdoor work at Milwaukee. The year 1910 therefore practically marks the close of Dr. Peckham's career as educator and scientist.

As stated on a former occasion (Ent. News, 22, p. 460, 1911) Dr. Peckham's types have been deposited chiefly in the Museum of Comparative Zoology at Cambridge, while the remainder of his spider collections and the greater part of his library on spiders have been donated to the Milwaukee Public Museum.

Although Mrs. Peckham has expressed a contrary intention to the writer, it is hoped that she will continue the work so well begun and carried on with her collaboration. To her, the able wife of an able husband, these meager words are dedicated.

R. A. MUTTKOWSKI, Madison, Wis.

Overwintered Cocoon Surviving Forest Fire (Lepid).

Of several cocoons of *Attacus cecropia* obtained at Annapolis, Maryland, during the winter of 1898, one had been exposed to a woods fire, its outer covering burned off and the next cover very much scorched. Still the adult emerged the following May in perfect condition. Several others of the same species, obtained the next several winters, were uninjured.—A. A. GIRAULT.

Neuroptera and Trichoptera from Costa Rica.

By Nathan Banks, East Falls Church, Virginia.

Dr. P. P. Calvert sent me for determination a small collection of these insects which he made in Costa Rica, together with two specimens given him by Mr. C. H. Lankester. As few species have ever been recorded from that country, the following records will be useful.

[I have added a few notes which are enclosed in square brackets. Most of the specimens will be placed in the Academy of Natural Sciences of Philadelphia.—Philip P. Calvert.]

Neuroptera.

Corydalis crassicornis McLachl.

Cartago, at the street electric lights in May; Alajuela, Sept. 12, 1909. [According to the late Professor P. Biolley's "Elementos de Historia Natural—Zoologia," San Jose, 1899, the Costa Rican name for *Corydalis* is *Maria seca,* dry Mary.]

Myrmeleon crudelis Walk.

Mangrove swamp, Puntarenas, 2 Feb., 1910.

Myrmeleon mexicanum Banks.

Cachi, 21 Sept., 1910 (C. H. Lankester).

Brachynemurus fenestratus Banks, Trans. Amer. Ent. Soc. xxxix, p. 221, 1913.

In a rice field along the railroad between Turrucares and Atenas, Dec. 21, 1909. Road from Hac. Guachipelin to Liberia, Jan. 17, 1910. The first-named locality is that of the types of this species which were collected by Prof. J. F. Tristan at the same time.

Colobopterus trivialis Gerst.

Juan Viñas, 3300-3500 ft., June 29, July 30, 1909. [The specimen of June 29 was on a long freely-hanging vine in the deep shade of the ravine of the little Rio Naranjo, the position assumed being such as to give the insect a most stretched-out appearance, as antennae, body, wings and hind legs were held parallel to the vine, the wings folded over the back roof-wise. On July 30 two of this species were pairing on a branch over the "farther" waterfall.]

Ululodes tuberculatus Banks.

Rio Tizate, Turrucares, 23 Dec., 1909.

Leucochrysa sp.

Cachi, 22 Sept., 1910 (C. H. Lankester), near *L. ceratica,* but the basal part of the antennae pale.

Leucochrysa calverti n. sp.

Pale yellowish, face unmarked, basal joint of antennæ brown, and a dark spot at outer tip, rest of antennæ pale; a dark spot each side on pronotum, and on anterior and lateral lobes of the thorax; a dark spot on the second segment of the abdomen, and another toward tip; legs pale. Wings hyaline, venation pale, costal end of costals, and radial end of radial cross veins dark; gradates dark, and faintly bordered, outer forkings dark, dark on cubital cross veins, and a rather large spot on origin of radial sector; stigma dark; hind wings have pale venation, stigma and outer cross veins faintly dark.

Pronotum plainly longer than broad, narrowed in front.

Wings of moderate size, fore wings rounded at tip, hind wings acute; four to six gradates in each series of fore wings, five in each series in the hind wings; in fore wings the outer gradates are about as near to the inner as to margin, and inner about as near to radial sector as to outer row; in hind wings inner series nearer to radial sector than to outer series; the divisory veinlet reaches nearly to end of third cubital cell.

Expanse, 23 mm.

Holanda Farm, Banana River District, 5 Nov., 1909 (Calvert). Type in the Academy of Natural Sciences of Philadelphia.

Leucochrysa ceratica Navas.

Alajuela, 4 Sept., 1909.

Chrysopa effusa Navas.

Cartago, July 9, Aug. 20, 1909. [The specimen of July 9 was reared from a larva collected June 17. The larval covering, to which the maker had attached fragments of the bodies of the insects on which it fed, had its free edge drawn partly together with silk to form the pupa case.]

TRICHOPTERA.

Leptonema albovirens Walk.

Cartago, 13 July, 1909, in daylight; another specimen found floating in the Rio Grande de Tarcoles, near the Cebadilla electric plant, April 12, 1910.

Heteroplectron maculatum Banks.

Flying over river, close to water's surface, just after sunset; Rio Liberia, Liberia, Guanacaste, 11 Jan., 1910.

New American Bees of the Genus Halictus (Hym.).

By Mrs. Marion Durbin Ellis, Boulder, Colorado.

(Continued from page 104.)

Halictus pallidellus sp. nov.

♀ Length 5.5 mm. Head and thorax rather light metallic blue, the mesonotum with a tinge of brassy green. Abdomen brown, the margins of the segments pale testaceous.

Face round, a little broader than long, closely punctured except on the vertex, which is very shiny, cheeks and face with abundant short white hair. Flagellum testaceous.

Mesonotum very shiny, punctures only moderately fine, and well separated, especially scattered just mesad of the parapsidal grooves, median groove distinct. No rim around the disc of the metathorax. Basal area without a true rim, the margin broadly rounded and very shiny, a narrow crescent-shaped area lying next to the post-scutellum finely roughened and with short indistinct plicae appearing very slightly depressed near the middle. Tegulae pale testaceous, impunctate.

Wings milky white, stigma and nervures very pale yellow, costal and marginal nervures light brown.

Legs dark brown, the tarsi testaceous.

Abdomen shiny brown, all the segments finely and sharply punctured, all except the disc of the first and the middle of the second segment, with abundant short white hair.

Pubescence not long but abundant throughout and everywhere pure white.

Habitat.—Roswell, New Mexico. 1 (type), and 1 cotype, at flowers of plum, April 14 (T. D. A. Cockerell).

The affinities of this bee are uncertain; the shiny metathorax, along with the very shiny mesonotum in which the punctures become more scattered along the parapsidal grooves, and the posterior margins of the segments, together with the short face, seem to place it in the same group with *H. zephyrus* Smith, *H. semibrunneus* Ckll., and *H. crassiceps* Ellis, from all of which the milky wings and the abundant white pubescence readily separate it. It is smaller than either *H. pruinosiformis* Crawford, or *H. albohirtus* Crawford, both species with milky wings and pale pubescence (*H. pruinosiformis* also has the dark costal and marginal nervures), from which the non-rugulose basal area of the metathorax also distinguishes it.

Prof. Cockerell compared *H. pallidellus* with the type of *H.*

albohirtus Crwf. in the U. S. National Museum, and found it considerably smaller and quite differently colored from Crawford's species. The following characters of *H. albohirtus* were noted as distinctive on comparison with *pallidellus*: Head and thorax yellow-green, almost golden green; front dull and coarsely granular, vertex shining in contrast; mesothorax very yellow, shining, with strong, not dense punctures; area of metathorax rugulose, with median impressed line and shining rim (area smaller, apical part hardly sculptured, in *pallidellus*); white hair on apical part of abdomen very long and abundant; anterior wing about 4.75 mm. long (much less in *pallidellus*); hind tarsi, knees and apices of tibiae clear light fulvous. The color of the wings is about the same in both species.

Halictus microlepoides sp. nov.

♀ Length 5.5 mm. Bright, metallic blue.

Face almost round, only the shiny, black, apical half of the clypeus produced below the eyes; frons and vertex finely and closely punctured, the punctures more scattered on the finely roughened lateral areas of the face; clypeus and supraclypeal area shiny; cheeks very shiny.

Thorax opaque; the mesopleurae with coarse punctures above and coarse fovea above the middle; upper half of the metapleurae with rather strong plicae. Mesonotum with fine scattered punctures and sharp, close and rather coarse lineolations. Basal area of the metathorax a little longer than the scutellum, with a low, rounded, faintly, shiny rim extending well laterally; the surface finely lineolate and with rather numerous, strong, reticulate rugae. Tegulae dark testaceous, impunctate.

Wings hyaline, stigma pale testaceous, the nervures darker, costal nervure piceous; second submarginal cell very little smaller than the third.

Legs black, knees and tarsi dark brown.

Abdomen almost nude, very shiny throughout, discs of all of the segments with very minute punctures; the narrow apical margins of the segments dark testaceous.

Pubescence very scant, pale gray on the legs and under side of the body.

Habitat.—Organ mountains, La Cueva, New Mexico, altitude 5300 feet, 1 (type) 5.5 mm. at flowers of *Datura meteloides* DC., August 31 (Townsend); Mesilla Park, New

Mexico, in the Agricultural College building, 1, cotype, May 8, 1895 (Cockerell No. 2930).

This species looks very like and is closely related to *H. pruinosiformis* Crawford, and *H. lazulis* Ellis, from which the very sharp lineolation of the mesonotum clearly separates it.

Halictus eophilus sp. nov.

♀ Length 6 mm. Head and thorax rather light bluish-green, clypeus and supraclypeal area shiny and a little brassy; abdomen clear brown, margins of the segments much paler.

Face round, clypeus somewhat produced, closely punctured, vertex, between the ocelli, shiny; ocelli glassy white and larger than in *H. connexus* Cresson (which is a much larger bee). Antennae dark brown, paler beneath.

Mesothorax broad, disc rather shiny, with only very weak lineolations, but with numerous, close, only moderately fine punctures, which are quite evenly distributed over the entire mesonotum; median groove distinct but not deep, parapsidal grooves rather indistinct. Metathorax not strongly retracted, the truncation without a rim; a distinct shiny rim around the basal area, widest immediately on either side of the middle, and extending well laterally, truncating the strong, crooked rugae. Tegulae clear, pale testaceous.

Wings whitish hyaline, stigma and nervures light testaceous, costal nervure reddish brown.

Legs brown, testaceous on the knees and tarsi.

Abdomen shiny, but finely and scatteringly punctured, margins of the segments testaceous; segments three to five and sides of one and two clothed with a thin white pubescence.

Pubescence of the face, sides and legs white and very scant, a little denser on the cheeks.

Habitat.—La Cueva, Organ Mountains, New Mexico, altitude 5300 feet, 1 (type), at flowers of *Datura meteloides* DC., September 5, before sunrise (Townsend); 1, cotype, at flowers of *Datura meteloides* DC., August 31 (Townsend); 1, cotype, at flowers of *Nuttallia multiflora*, September 2 (Townsend); Las Cruces, New Mexico, 1, cotype, on *Helianthus*, June 10, 1894 (Cockerell No. 917).

This species is clearly a near relative of *H. perpunctatus* Ellis, and *H. pruinosiformis* Crawford, with which it shares the rimmed and rugose basal area of the metathorax, and the close even puncturing of the mesonotum. The light clear

brown and totally nonmetallic abdomen, together with the very pale tegulae separate it from every other species of the *H. perpunctatus* group. Like every other species of this group, unless *H. sancti-vincenti* Ashmead be admitted to it, *H. eophilus* is a species of the Rocky Mountain region.

Halictus diversopunctatus sp. nov.

♀ Length 6 mm. Bright olive green throughout, the metathorax bluer.

Head broad, facial quadrangle square, narrowed below, clypeus but little produced. Entire face rather shiny, although closely and finely punctured above; front without a median carina below the antennae, supraclypeal area almost impunctate in the middle, not marked off from the lateral areas by a distinct sulcus, the face evenly convex right across in this region, almost to the orbits; cheeks shiny but finely punctured.

Mesopleurae shiny, coarsely punctured; metapleurae opaque with a very few faint plicae near the upper end. Mesonotum somewhat shiny, with numerous rather fine and close punctures of three distinctly different sizes, the very fine and the coarsest both less abundant than the medium ones. The punctures especially crowded on either side and just in front of the parapsidal grooves; median groove obsolete. Basal area of the metathorax narrow, with a low rounded rim limited to a short space immediately on either side of the middle, the surface distinctly lineolate and with numerous, simple, strong plicae reaching the truncation. Tegulae bright brown, impunctate.

Wings hyaline, very faintly yellow; stigma pale yellow, costal nervure piceous, the other nervures light brown; second and third submarginal cells subequal.

Legs dark brown, inner spur of the hind tibia with five well developed teeth.

Abdomen blunt, discs of the segments with minute punctures, apical margin of the segments narrow and testaceous; segments 3 to 5 covered with short grayish hair.

Pubescence pale grayish and rather abundant on the face, cheeks and thorax; faintly yellowish on the mesonotum and legs, white below.

Habitat.—California, 1 (type), No. 930, collector and exact locality unknown.

This species may be separated from all other species of the genus found in North America, with a green abdomen, by the character of the mesothoracic punctures and the configuration of the supraclypeal area.

Halictus proangularis sp. nov.

♀ Length 6.5 mm. Head, thorax and abdomen rather dark, uniform greenish blue, abdomen more shiny.

Head longer than wide, clypeus produced for half its length beyond the eyes, the margin black and closely punctured. Face rather finely and closely punctured; the narrow margin of the lateral area of the face, along the supraclypeal area and clypeus shiny and unsculptured. Antennae dark brown, cheeks narrow.

Tubercles pointed and the antero-lateral angles of the pronotum sharply projected, forming two broad angles on each side, somewhat curved forward. Mesonotum finely lineolate and rather finely punctured, the punctures rather close and crowded except along the median groove and at its anterior end. Metathorax very short, the entire surface closely lineolate, basal area narrow and crescent-shaped, slanting sharply downward, with a low narrow rim extending well laterally, and numerous weak, simple plicae that extend over the rim at the sides. Tegulae pale brown, the anterior half with very fine punctures and rather long yellowish hair.

Wings dusky and pale brownish, stigma and nervures dark brown.

Legs light brown, somewhat paler towards the tarsi; covered with rather dense, rich ochraceous hairs.

Abdomen broad and blunt at one end, the first segment almost impunctate and very shiny, the rest of the surface finely punctured, margins of the segments not testaceous. Segments three to five and the sides of segment two with a thin, pale buffy pubescence.

Pubescence scant and ochraceous, a little paler on the face and lower part of the pleurae.

Habitat.—Bayamon, Porto Rico, 1 (type), January, 1899 (August Busck). In U. S. National Museum.

The relationships of this species are not clear. The sharp tubercles and antero-lateral angles of the prothorax separate it from all of the other North American green *Halictus*. The uniform greenish blue color with the dark wings gives it a superficial resemblance to *H. aquilae* Ckll., which, however, is a much larger species, with a short face and a very different metathorax.

Length of the Pupal Stage of Adalia bipunctata Linn. (Col.)

Two larvae of this species pupating on June 19, 1900, at Annapolis, Maryland, emerged five and a half days later. Another pupating May 27, 1900, emerged early in the morning of June 3, or after six and two-thirds days. When disturbed, the pupa raises itself very quickly to a perpendicular position.—A. A. Girault.

Adelocephala bisecta (Lepid., Family Ceratocampidae).

By John R. Eyer and Chester H. Menke, Greenville, Ohio.

(Plate VII.)

Adelocephala bisecta, together with its near relative *A. bicolor* form the only two representatives of this genus in the United States. These two show a remarkable similarity in their larval habits, and as both feed on the same food plants they have not, until very recently, been distinguished.

The moth of *A. bicolor,* in coloring and marking, resembles very closely the female moth of *Anisota senatoria.* Yet the males of the two may very easily be distinguishd, for *bisecta* lacks the transparent spot on the fore wings which is so characteristic of the male *senatoria.*

The fore wings of *bisecta* are ochre-brown, speckled with purplish dots and crossed by a purple border line. The discal dot, although white, is very small and inconspicuous. The under wings vary from orange to carmine, but are most deeply colored near the abdomen. The body is ochre-brown, and very "furry." Male and female are marked exactly alike, but the wings of the male are more acutely cut. The antennae of the male are pectinate at the base, and simple at the tip; those of the female are simple.

In the Ohio valley *bisecta* is double brooded, the moths being found late in May, and then again in July.

The eggs are light, brownish green in color, and very flat. They are laid in mats or clusters, and may be distinguished from those of *bicolor* by their brownish tinge. In nine days the caterpillars can be seen through the egg-shell, and on the eleventh day they hatch.

The little caterpillars are ¼ inch in length, yellow green in color, and bear eight dark colored, knobbed horns on the second and third segments, as well as a smaller one on the anal segment. They will feed on either honey locust (*Gleditschia*), or Kentucky coffee-tree (*Gymnocladus*).

In about two weeks they moulted, coming out dark green, with yellow horns and granules. Along each side they bore a stripe composed of yellow granules. After the third moult

ADELOCEPHALA BISECTA—EYER & MENKE.

they developed four silver-colored horns on the seventh and ninth segments. Before, these were only rudiments resembling large granules. In the last moult many of the granules, as well as the last set of horns on the third segment, and the lines on the anal segment, take on this silvery color. The eight horns on the second and third segments vary from orange to light blue. Along each side they bear a compound sublateral line composed of a yellow and blue stripe running parallel to one another.

When full grown the caterpillar is about 1¾ inches in length. Its main distinguishing marks from the *bicolor* are its greater number of silver horns and yellow granules, and in the lighter color of the eight horns on the second and third segments. Near pupation, the caterpillar burrows and, in the cell it forms, turns into a very dark brown pupa about 1¼ inches in length and heavy in proportion. The pupa resembles *bicolor* very closely although it is not so rough on the wing cases. The caterpillar period of *bisecta* is from 46-50 days. The pupae are very inactive, yet are seldom diseased. The moths emerge in late afternoon or early morning, and may be easily mated in capitivity. They are night flyers and, as all the Ceratocampids, fly very late.

1913 as a Catocala Year (Lepid.).

By R. R. Rowley and L. Berry, Louisiana, Missouri.

In the middle region of the Mississippi valley this has been the best Catocala year since the summers of 1900 and 1901. Like the season of 1900, the past summer was hot and rainless and a poor one for most butterflies. Even in August, when the Papilios usually are plentiful along the streams, there was an almost entire absence of them about their usual haunts. In June, it is true, the Fritillaries were abundant through the woods and at *Asclepias* bloom, but that was just as the drought set in, and they were the only butterflies that were abundant here in Pike County, Missouri, in 1913. There was a great scarcity of the "Little Wood-Satyr," *Neonympha eurytris,*

never scarce here before, and even the Monarch and the Viceroy were among the rarities. Scarcer than "hens' teeth" was the "Goat Weed Butterfly" and the drought actually burned up its food plant, *Croton capitatum*. Hardly a Grapta was to be seen and only an occasional "Red Admiral."

In September, when the rains came, a few Cloudless Sulphurs, Dwarf Yellows and Little Sulphurs, but not a *nicippe*, flitted about the straggling flowers in the creek beds.

It was a great year for the Argynnids, as we said before, and perfect clouds of them hung over the milkweed flowers, magnificent Cybeles and occasional Idalias, those splendid "Silver Underwings." At one sweep of the net one could take a dozen Cybeles. Some of my school boys took a few of the "Red-spotted Purples," but, all in all, it was a gloomy butterfly year. However, the poet has told us that every cloud has a silver lining, and the silver lining to the 1913 cloud was the great abundance of Catocalae. The season began early with the usual number of *ilia*, yielding some splendid varieties, the "white spots," "the pale front wings" and some with the top side of the forewing almost black, but never a yellow hind wing, such as the Senior Author took two years ago. *Epione* was fairly common and *residua* in great numbers. *Innubens* and its varieties came later than usual and *scintillans* outdid itself in its varieties and beauty. One splendid specimen had intensely black front wings with an almost white outer border and lacking the suffused boundary. *Habilis* was very plentiful, as also *palaeogama*, with its varieties, *annida* and *phalanga*. Better than all else, the very giant of "Underwings," *viduata*, always heretofore scarce in central Missouri, was almost common. The Senior Author and Mr. George Dulany took quite forty between the middle of July and the last of August. Perry Glick took numbers of it in Caldwell County and shared equally with the Pike Countians in catches of the usually rare *nebulosa* and *junctura*. It was distinctly an *ilia-epione-residua-palaeogama-habilis-viduata* year.

From pupae of bred larvae, the first imagoes of *illecta* emerged June the 14th and that was the "beginning of the

fun." In the woods searching for Cato-larvae from June 10th to the middle of the month no imagoes were flushed, but a quest for winged creatures on the 20th bagged several *ilia*. On the following day, accompanied by Mr. George Dulany, the Senior Author took two *polygama*, two *ultronia*, one *illecta*, two *innubens*, four *epione* and twenty-eight fine *ilia*, five or six of the latter being white spotted and one almost black. The day was a close one, with a temperature of ninety degrees, and the moths were at the bottoms of the trees.

June 25th was a sultry day after several showers, and Catos were fairly abundant. Lowell Pinkerton was the companion on this trip.

A "red-letter" day was June 28th, when Mr. Dulany and the Senior Author added to the usual catches one each of *coccinata*, *dejecta* and *parta*.

The first *palaeogama* was seen on July 3rd. We sugared on the night of the 4th, but failed to get many moths. The first *residua* from bred chrysalids appeared on the 5th and specimens of that species and the first *neogama* in the woods on the 6th. This was the trip on which the best of the *scintillans* were taken. The first *retecta* was from a bred chrysalis, July 11th. The first *amica* was taken on the 12th, along with the first *cara* and many *palaeogama* and *innubens*.

George Dulany, Harold Davenport and the Senior Author chased the "millers" on July 13th, taking many *residua*, *neogama*, *cara*, *palaeogama*, *innubens*, *scintillans*, one *retecta*, two *grynea*, a few *polygama* and ragged *ilia* and *epione*.

The first *habilis* was a bred specimen on July 16th. In the woods the first *habilis* was taken on the 19th. At the same time Mr. Dulany took the first *cerogama*, an imperfect *junctura* and the first *phalanga*.

On the 21st day of July, the Senior Author took the first *viduata*, some fine *retecta* and the second *cerogama*. July 23rd was a hot day with a heavy atmosphere and Catocalas were abundant, high and low, but nothing new was added to the series taken on the 21st, except a *snoviana*.

With a heavy atmosphere after a shower and at a tempera-

ture of 90 degrees, close and cloudy, we took many moths, including half a dozen fine *cara,* two splendid *viduata,* four brand-new *habilis,* the first *lacrymosa,* besides the species mentioned on the 13th.

Alone in "Catocala Hollow," on the 28th, Mr. Dulany took two *viduata,* one *lacrymosa* and the first each of *nebulosa* and *amatrix.*

With the thermometer at 100 degrees, close and dry, July 29th, Mr. Dulany and the Senior Author found the woods alive with Catocala, along the branch and upon the bench and side of the hill, *innubens, cara, palaeogama, neogama* and *retecta,* in the hollow, with *residua, palaeogama* and *viduata* along the hill slope. The valuable catches were three *viduata,* one *cerogama,* and the first *vidua,* as well as the first *angusi.*

July 30th yielded Mr. Dulany three *nebulosa,* one *viduata,* one splendid *carissima* and numbers of *cara, palaeogama, retecta,* etc.; two *nebulosa,* one *vidua* and the first *lucetta* on the 31st.

August 2nd gave us three *vidua,* two *viduata,* one *lucetta,* three *lacrymosa* and a ragged *flebilis,* the first of the season. August 4th, one *nebulosa,* three *viduata* and one *vidua. Cara, innubens, palaeogama, residua, habilis* and *neogama* were especially abundant. The day was close, dry, hot, 92 degrees. On the 5th, took two fine *lacrymosa,* one splendid *paulina,* one *angusi* and many *habilis.* The day was warm, close, cloudy and threatening rain.

The "high-water" mark" of *viduata* was August 7th, when four perfect ones were taken, besides one *vidua,* one *angusi,* one *lacrymosa* and a number of good *cara.* The first *piatrix* of the season was taken on this trip.

Another "red-letter day" was August 11th, when the Senior Author, accompanied by Dr. Roy Marsh, took a dozen *cara,* one *amatrix,* one *nebulosa,* four *vidua,* four *viduata,* two *angusi,* two *lacrymosa, neogama, palaeogama, retecta* and *residua.* There were Catocalas on almost every tree, high and low, in a close, hot, moist atmosphere after a slight rain.

In company with Dr. Marsh again on the 13th, the record

of the 11th was almost duplicated, the species taken embracing *nebulosa, vidua, viduata, lacrymosa, angusi* and one ragged *flebilis.*

One *nebulosa* and one *piatrix* on the 15th.

On the 16th, in company with Mr. George Dulany, took two *viduata,* one *lucetta,* five *lacrymosa,* three of which were *paulina,* one poor *flebilis,* the first *robinsoni,* a ragged female *nebulosa,* seven *vidua,* etc. Added a *lucetta* on the 19th.

Although the temperature was 94 degrees, warm and clear, on the 20th, moths were few and nearly all high on the trees. One *viduata,* one *robinsoni,* five *vidua* and one ragged *lucetta.* On August 28th, took four *robinsoni* and other Catos. Moths abundant and at the bases of the trees. Saw a *vidua,* a *palaeogama,* a *residua* and an *innubens* on the same tree. On the 30th, took two *viduata,* nine *vidua,* two *robinsoni,* one *lacrymosa* and the last of the *nebulosa,* a very ragged male.

September 1st, in company with Mr. Dulany, found moths plentiful. Took twenty-six *robinsoni,* thirteen *vidua,* four *piatrix,* one *amatrix,* one ragged *junctura.* The moths were at the bottoms of the trees and the temperature was 105 degrees at 2.00 P. M.

On September 5th, took three *robinsoni,* besides many other ragged things. The day was like the 1st in every way, but Catocalas were far less abundant.

Mr. George H. Hosenfelt, of St. Louis, reports September 7th as one of the best Cato days of the year. He took *viduata, phalanga, evelina, paulina, zelica* and a splendid *marmorata.* He captured the last named on the bare bark of a great elm.

September 10th saw a few ragged *robinsoni* and *vidua* in the woods and *robinsoni* again on the 18th.

On September 15th Mr. E. A. Dodge, of Santa Cruz, California, reports taking *Catocala hippolita* on shade elms.

With the Junior Author, the Catocala season at Vinton, Iowa, hardly began before August and was at its best about the first of September, and the catches included *minuta, ultronia, polygama, clintoni, innubens, parta, cerogama, retecta, palaeogama, neogama, piatrix, cara, amatrix, unijuga, relicta* and varieties, one *coccinata, amica* and *meskei.*

Both of the authors are still somewhat puzzled over the scarcity of Catocalas one day and it may be, their great abundance the very next. On damp, sultry days, insects fairly swarmed in the valleys, not only Catocalae, but other winged hexapods, while on close, hot days the moths were usually abundant and low on the trees everywhere. On cool or high-windy days few moths were to be seen, high or low. The puzzle is what becomes of all the Catos on such days. After all, isn't it barely possible that one year is quite as prolific of moths as another and the supposed great abundance of some years is merely the result of weather conditions that drive the moths to the forest and low on the trees? At least, this will account for the abundance or scarcity on certain days. Another point, in observation on one species, namely, *lacrymosa,* that this moth fluctuates in numbers from day to day, being fairly common one day and almost totally absent the next, under the same weather conditions. It is true, they may be high in the trees and always fairly common during their season, but this is hardly probable. One can imagine that they migrate from place to place in the woods. The Junior Author found that some species rare in the daytime were rather common at night, as she sugared. The Dodges found that true of *amatrix* here some years ago. Now, *amatrix* is a rare moth by daylight at Louisiana, but not uncommon at bait in the late summer evenings.

It was interesting to find, this summer, that several species of Catocala feed at flowers and the observation was the result of the accidental finding of the pollen grains of *Asclepias cornuti* adhering to the legs of *innubens, epione* and *residua.*

Of female Catocalae, imprisoned in paper sacks for eggs, numbers of *retecta, residua, palaeogama, habilis, neogama* and *vidua* lived a month, supplied with crushed or bruised grapes for food and with a change of air and food every day. Some of these prisoners, fairly fresh, laid no eggs, while battered specimens sometimes laid hundreds. Some specimens hardly survived a week, dying with no apparent excuse.

In the forest, *Catocala viduata* proved to be easy game,

rarely flying away from the hickory or white oak on which it rested, even if disturbed, while *lacrymosa* took flight at the slightest sound and was hard to trap.

Associated under the roots of trees overhanging the brook were *cara, amatrix, junctura* and *nebulosa,* the last named always out of sight, and the wariest of the Catocalae. Mr. Dulany seemed to make a specialty of capturing *epione, lacrymosa* and *nebulosa,* and certainly became proficient in taking them.

Residua, angusi and *judith* are always at rest on hickory and usually the shell-bark variety.

Vidua, viduata, robinsoni, retecta and *habilis* on hickory or white oak, and occasionally on sugar tree; *amica* on white oak.

Both Mr. Ernst Schwarz and George Hosenfelt report the capture of *Catocala titania* about St. Louis in the early part of the season among the crabs and hawthorns.

On the collecting trips of June 21st, 28th, July 4th, 6th, 12th, 13th, 19th, 27th, 29th, 31st, August 2nd, 16th and September 1st, Mr. George W. Dulany accompanied the Senior Author, and it was his unerring eye and perseverance that made possible many of the best catches. As a Catocala hunter, he has no superior.

Perhaps we should call attention to the entire absence of *Catocala subnata* and *insolabilis* and the great scarcity of *flebilis, amatrix* and *piatrix* in the neighborhood of Louisiana, Mo., in the summer of 1913.

The attempt to feed the young larvae of *Catocala aspasia* on willow was a failure and the caterpillars that hatched on May 5th lived nearly two weeks.

Resumé of Observations in 1913.

June 15 *illecta,* rarely taken in the woods.
20 first *ilia* with the white spotted variety.
21 first *ultronia, polygama, innubens, epione.*
25 first *scintillans.*
26 *minuta.*
28 *coccinata, dejecta, parta.*
29 *ultronia* abundant.
29 *aholibah* (bred.)

July 2 *neogama* (bred.)
3 *verecunda* (bred), first *palaeogama.*
5 *grynea* (bred).....*nebulosa,* 1912.
6 *neogama,* first in the woods.....*insolabilis,* 1912.
6 *residua,* first in the woods. Afterward very plentiful.
6 *innubens* and *scintillans,* suddenly become plentiful.
11 *retecta* (bred.)
12 first *amica* and *cara. Innubens* numerous.
13 *retecta* in the woods, *grynea*.....*viduata* and *paulina,* 1911.
16 *habilis* (bred.)
19 *habilis* in the woods, *cerogama,* ragged *junctura.*
19 *phalanga.*
21 first *viduata.*
23 *residua, palaeogama* and *cara,* abundant.
23 *cerogama, snoviana.*
27 *lacrymosa.*
28 *nebulosa, amatrix.*
29 *angusi.*
30 *carissima.*
31 first *vidua, lucetta.*
Aug. 2 ragged *flebilis.*
5 *paulina.*
7 first *piatrix.*
16 first *robinsoni.*
30 *robinsoni* and *vidua* fairly common and good.

Imagoes are worth taking for a month from first appearance. 1913 gave an abundance of *epione, residua, palaeogama, habilis, viduata, nebulosa, robinsoni.*

Descriptions of Early Stages.

Catocala aholibah.

Eggs of *Catocala aholibah,* as well as those of the variety *coloradensis* hatched on the 1st and 2nd of May and at one and a half days of age were light grayish brown with dark brown heads and about one-fourth of an inch in length. Lateral lines and stripes indistinct. The larvae of both these forms indistinguishable throughout their growth.

On the 5th, the larvae of *aholibah* moulted for the first time and were light in color, with large bi-lobed head, distinct tubercle and short black bristles. Longitudinal body lines more distinct. The little caterpillars after the first moult take to the twigs for color protection; i. e., lie lengthwise of the twigs.

The second moult occurred on the morning of the 8th and the lar-

vae were over half an inch long, dark gray with fine longitudinal light lines. A strong hump over the 5th abdominal segment. Head large with facial white lines. Face flat, slightly lobed above. The top of the abdominal hump black.

The third moult occurred on the 12th and 13th and the larvae were about an inch long, dirty gray with a big head, bearing a pair of blunt-like tubercles above with yellow lunules in front. Body tubercles yellow-brown. A sharp dark brown hump with a yellow point over the 3rd pair of prolegs. A pair of strong tubercles over the 7th abdominal segment.

After the fourth moult on the 16th, the caterpillars were from 1½ to 1¾ inches long, light gray with a yellowish tinge. Tubercles white with black tips. Head large, flat in front, lobed above with yellowish tips to the lobes and heavy black lines behind the lobes. Head a little lighter in front than the rest of the body. A pale brownish band just behind the hump over the 3rd prolegs. The hump is hardly distinguishable from the body color except it has a white top. The pair of tubercles over the 8th abdominal segment have black tips and are strong. The under side of the body light with round black spots.

By May 21st, the larvae of *aholibah* were full grown and less than three inches long, thick heavy caterpillars, gray with a brownish tinge, black dots in encircling irregular white patches. Tubercles black in a white basal spot. The cross band over the 3rd pair of prolegs light yellow brown. Hump with dark base and yellow tip. The lateral row of setae rather short. The bristles on the top of the tubercle short. Head bi-lobed above with a broad black band behind the lobes. The true legs reddish brown with cross black bands at the segments. Spiracles black with an encircling white patch or line. A cross patch of lighter than body color over the first abdominal segment. The under side of the body pale or white with a midrow of large black spots in red-brown or yellow-brown patches.

All of the *coloradensis* larvae died after the fourth moult and the first of the *aholibah* began spinning on the 23rd. From a number of chrysalids of *aholibah* but one imago emerged, a fine male, on June 29th, with a pupal period of over five weeks. The chrysalids were killed, perhaps, by heat. The larvae of both *aholibah* and *coloradensis* fed on bur oak.

Catocala faustina and var **verecunda**.

Eggs of *Catocala faustina* and variety *verecunda* hatched on the 4th and 5th of May. The larva of *verecunda* at the first moult on the afternoon of the 7th was one-third of an inch long, light color, with almost white dorsum. Head light chestnut. Larva slender.

Just before the second moult on the 10th, the larva of *verecunda*

is light greenish, much darker, almost black, along the abdomen behind the hump to the rear end. Head light chestnut.

After a moult on the 14th, the larva was over half an inch long, pale brown with a cross black band and hump over the 3rd pair of prolegs. Head flattened, body color much like the larva of *Catocala cara*. On the 16th, the larvae were about three-fourths of an inch long, very light brown, almost cream color, striped indistinctly. A dark reddish brown band crosses the body over the 3rd pair of prolegs. The hump slight. Head as in *cara*.

Moulted on the 17th. On the 28th, the larvae of both *faustina* and *verecunda* were about grown. One of the latter was very light with a tinge of brown. Another, a decided brown with pink tubercles. Lateral setae very short. The cross band over the 3rd pair of prolegs very pale, obsolete on top. The dorsal hump small, pale straw color. Head as in *cara*, flattened and lobed above with yellow-brown lobes, behind which is a dash of black to the mouth, the dashes uniting above. Under side of the body white with the central row of black spots. Pinkish around the spots.

All of the *verecunda* larvae except two or three, could not slip their tough skins at the last moult and so died. Either the food was not damp enough, or the larvae lacked strength. The first larva of *verecunda* began spinning on June 2nd and was two inches long, light brown with yellow tinge. Very short lateral setae. Tubercles red-brown but dull. The longitudinal lines indistinct. The hump over the 3rd pair of prolegs small and with a light straw colored top. The cross band behind this tubercle, or hump, is only slightly darker than the general color, and that only on the side. The crest over the 8th abdominal segment slight with a dark line behind it that runs down on the side to the spiracles. Spiracles small with a dark ring about each. Head yellowish, strongly so at the lobes above. A dark encircling line surrounds the face. Under side of the body greenish white, with a midventral row of black spots with a slightly pinkish border. Larvae fed on willow. No distinction between the larvae of *faustina* and *verecunda*. The first larva of *faustina* cocooned on June 5th. On the 3rd of July, one pupa of *verecunda* gave a moth, twenty-seven days after beginning to spin. No other chrysalids of either *faustina* or *verecunda* gave imagoes.

Catocala residua.

Eggs of *Catocala residua* hatched on May 4th, the same day that the *verecunda* eggs hatched. On May 7th, before first moult, the little caterpillars were 1-5 to ¼ of an inch long, light reddish brown with small darker head. Slow growth. On the 10th, larvae still small, color dark gray, striped longitudinally with white. Head small, dark.

After moulting on the 17th, the larvae were three-fourths of an inch long. Very dark brown, almost black, striped longitudinally with light and black lines. Head round and colored as body. True and prolegs light or flesh color. A mid-dorsal row of triangular whitish spots. No dorsal hump.

After the moult on the 21st, the larvae were over an inch long, dark brownish gray with large round head, slightly lighter, not dished in front as in *aholibah,* and the *cara* group. A line of small light reddish brown mid-dorsal triangles with the vertical angle toward the head. True legs cream color. No apparent row of lateral setae.

After moulting the last time, the larva was gray-brown with large round head, white and brown mottled. True and prolegs flesh color. Tubercles light reddish brown. Tubercular bristles rather strong. No lateral setae.

The grown larva of *residua* is from 2½ to 2¾ inches long, light grayish brown, streaked longitudinally with black and cream color. Whole surface with black dots and broken black lines. No dorsal hump or lateral setae. Tubercles light straw color. True legs faintly pinkish. Prolegs flesh or straw color. Head round, not lobed, and with pale red brown linear mottling. The top of the crest over the 8th abdominal segment straw color. Under side of body white with the usual row of mid-ventral round black spots with hardly a surrounding tinge of red. The tubercular bristles strong.

The colony was fed on pecan. The first larvae began spinning June 6th. The first imagoes appeared July 5th, twenty-nine days from the time the larvae began spinning. A larva of *residua* taken under hickory bark in the woods was over two inches long, very light gray with a mid-dorsal row of light triangles surrounded by dark brown, almost black. A dark brown, almost black spiracular band. Head light gray with pale reddish brown mottling. Stiff tubercular bristles but no lateral setae. Under side of body whitish-green with the mid-ventral row of smoky black spots. No humps. Prolegs faintly greenish. True legs pale. No facial dash but with a black splotch either side of the mouth. This larva was much lighter in color than the brood of larvae bred from the egg but the imago differed little from other *residua.*

Supposed Diseased Eggs of Thyridopteryx ephemeraeformis Haworth and Record of Parasites (Hym.)

Among a number of eggs of this species obtained during the winter of 1900-1901 there were some which appeared to be diseased in otherwise healthy masses. These were coffee-colored with irregular blackish markings, and afterward no evidences of eggparasitism by insects were obtained. From many of the overwintered bags *Catolaccus thyridopterygis* Ashmead was obtained and a few *Smicra mariae* Riley. The latter seemed to be the host of the *Catolaccus.*—A. A. Girault.

The Nearctic Species of the Hymenopterous Genus Sympha Foerster.*

By S. A. Rohwer.

As far as the writer can learn no record of the host of any species of the Dacnusine genus *Sympha* has ever been published. Mr. C. T. Greene has bred a species, *Sympha agromyzae,* from the pupa of a species of *Agromyza* where it is a primary parasite. The conditions under which the host lives and some remarks on the parasite will be published by Mr. Greene.

While studying these Nearctic species the writer studied the literature dealing with the European species and judging from it none of the species noted here are the same as any of the European species, although *sericea* (Provancher) is evidently closely allied to *ringens* (Haliday).

TABLE TO THE SPECIES.

Mesonotum coarsely sculptured, notauli not sharply defined; (head rather densely and strongly punctured above antennae), *belfragei* Ashmead

Mesonotum not coarsely sculptured, notauli well defined 1

1. Prescutum without a median furrow; head below the antennae shining and impunctate ..... *lucida* Rohwer

   Prescutum with a median furrow which is foveolate; head below the antennae punctured 2

2. Head above the antennae impunctate; suture in front of the scutellum without a strong longitudinal carina, *portlandica* Rohwer

   Head above the antennae with separate punctures; suture in front of the scutellum with strong carinae 3

3. Dorsal and posterior aspects of the propodeum separated by a complete oblique carina; (antennae 29-jointed, scape black; hind tarsi dusky) ..... *nigricornis* Rohwer

   Dorsal and posterior aspects of propodeum not separated by carina 4

4. Hind tarsi dusky; antennae 27 to 29-jointed; median carina of first tergite complete to apex ..... *sericea* Provancher

   Hind tarsi pale; antennae 32-jointed; median carina of first tergite not extending to apex ..... *agromyzae* Rohwer

*A contribution from the Branch of Forest Insects of the Bureau of Entomology, Washington, D. C.

Sympha belfragei (Ashmead).

Oenone belfragei Ashmead, Proc. U. S. Nat. Mus. Vol. 11, 1888, p. 649.

Sympha belfragei Dalla Torre, Cat. Hym. Vol. 4, 1898, p. 30.

"*Male and female.*—Length, 3 to 3 2-5 mm. Black, opaque, rugosely punctate, covered with a sparse, white, sericeous pubescence; two basal joints of antennae and legs flavo-testaceous. The head is transverse, very short, about twice as wide as long vertically; the eyes are oval and extend to the base of the mandibles; the clypeus projects much below the lower line of the eye, and with the short head and the distended mandibles gives the insect a very peculiar appearance. Antennae 31-jointed in the male, 29-jointed in the female; the thorax is shorter than the abdomen, with distinct parapsidal grooves, the middle lobe has a punctured longitudinal groove down the center; metathorax areolated; abdomen oval, the sculpture having a longitudinal direction, the first segment being more distinctly striated; in the female it is 4-segmented, in the male 5-segmented, the terminal segments being very small. Wings hyaline, iridescent; veins brown; the recurrent nervure joins the 1st submarginal cell between the middle and the apex; the submedian cell is slightly longer than the median.

"*Habitat.*—Texas.

"Described from four specimens, two male and two female, in collection Belfrage." [Original description.]

Type.—Cat. No. 2978, U. S. N. M.

Sympha lucida new species.

Male.—Length, 2.75 mm. Head entirely smooth, shining, impunctate; anterior margin of the clypeus truncate; anterior margin of the labrum obtusely pointed; ocelli not enclosed by a furrow; antennae 29-jointed, third joint about one-third longer than the fourth; mesonotum shining, almost impunctate; prescutum without a median longitudinal line; notauli finely foveolate posteriorly, where they unite, strongly foveolate; suture between the scutum and scutellum with four strong rugae; scutellum shining, almost impunctate; dorsal aspect of the propodeum shining, not separated from the posterior aspect by a carina, strongly reticulate; entire sides shining, almost impunctate; first tergite longitudinally striate and with nine longitudinal rugae, second and third segments longitudinally striate, the striae irregular and not as strong as on the first tergite; the posterior segments shining, impunctate.

Black; scape piceous beneath; legs ferruginous, the hind tarsi slightly dusky; wings hyaline, iridescent; venation pale brown.

Easton, Washington. Described from one male collected by A. Koebele.

Type.—Cat. No. 16471, U. S. N. M.

Sympha portlandica new species.

Male.—Length, 2.5 mm. Anterior margin of the labrum broadly rounded; anterior margin of the clypeus subtruncate; head below the antennae subopaque with fine, poorly defined and rather separated punctures; head above the antennae shining, impunctate; ocelli not surrounded by a furrow; antennae 25-jointed, the third joint subequal with the following. Mesonotum shining, practically impunctate; prescutum with complete longitudinal furrow which is finely foveolate; notauli rather coarsely foveolate and forming a *U* posteriorly where they are reticulate; suture between the scutum and scutellum with two fine longitudinal rugae; scutellum shining, impunctate; dorsal and posterior aspects of the propodeum not separated by a carina, both reticulate; posterior part of the mesepisternum shining, impunctate, anteriorly strongly reticulate; sides of the propodeum sculptured like the posterior face; first tergite sculptured like the following two, finely striato-reticulate with the striae predominating, no predominating carina on three basal tergites; the following tergites shining, impunctate.

Black; palpi piceous; legs below the coxae rufo-ferruginous; the four posterior tarsi being dusky; wings hyaline, iridescent, venation pale brown.

Portland, Oregon. Described from one male collected April 28.

Type.—Cat. No. 16472, U. S. N. M.

Sympha nigricornis new species.

Female.—Length, 3 mm. Head below the antennae opaque, closely, rather finely punctured; above the antennae shining, with well defined punctures; ocelli enclosed by deep furrows; antennae 30-jointed, the third and fourth joints subequal; mesonotum shining, sparsely punctured with well defined punctures; prescutum with a complete longitudinal foveolate furrow; notauli more coarsely foveolate, and posteriorly V-shaped with the apex of the V reticulate so as to be U-shaped; suture between the scutum and scutellum with five strong rugae; scutellum shining, impunctate; dorsal aspect of the propodeum finely reticulate on a granular surface and with two poorly defined longitudinal carinae which extend posteriorly to the oblique carina which separates the dorsal and posterior aspects; posterior aspect of the propodeum reticulate; posterior part of the mesepisternum shining, sparsely punctured with well defined punctures; the an-

terior portion granulato-reticulate; sides of the propodeum coarsely reticulate; first tergite more coarsely longitudinally striate than the following and with a complete, very prominent median carina; second and third tergites with fine, well defined longitudinal carinae which extend to the apex of the third tergite; following tergites shining, impunctate.

Black; palpi ferruginous; mandibles, malar space, and scape piceous; tegulae and legs rufo-ferruginous; wings hyaline, iridescent, venation pale brown.

Described from one female from Colorado without definite locality.

Type.—Cat. No. 16473, U. S. N. M.

Sympha sericea (Provancher).

Oenone sericea Provancher, Addit. fauna Canad. Hym., 1888, p. 394.

Sympha sericea Dalla Torre, Cat. Hym. Vol. 4, 1898, p. 30.

Original Description. "♀.—Long. .12 pce. Noire avec les pattes jaune-miel. Les mandibules jaunes avec l'extrémité noire. Antennes soyeuses, noires, le scape jaunatre en dessous; les écailles alaires jaunes. Le mésothorax à 3 sillons bien prononcés, se réunissant avant d'atteindre la fossette de la base de l'écusson, les 2 latéraux crenélés; le métathorax finement rugueux. Ailes hyalines, le stigma et les nervures brun-foncé. Pattes jaune-miel sans aucune tache y compris les hanches. Abdomen sans aucune tache, soyeux, seulement 3 segments; tariere à peine sortante.—Ottawa (Harrington.)"

Additional Characters.—Head below the antennae with fine, rather close punctures, above the antennae with well separated and well defined punctures; ocelli enclosed by a deep furrow; median, longitudinal line of prescutum complete, well defined, foveolate; suture in front of the scutellum with four strong rugae; dorsal aspect of the propodeum irregularly reticulate on a granular surface, with two raised, but poorly defined longitudinal lines; carapace sculptured to apex, the following segments smooth.

Above characters taken from a female from the type locality, collected by Harrington and now in collections of U. S. N. M.

Sympha agromyzae new species.

Female.—Length, 3 mm. Head below the antennae shining, sparsely punctured with fine, well defined punctures; above the antennae shining, punctured with sparse but well defined punctures; ocelli enclosed by a strong furrow; antennae 32-jointed, the third joint about one-fourth longer than the fourth; mesonotum with fine, well defined

punctures; prescutum with a complete, longitudinally foveolate furrow; notauli foveolate, U-shaped posteriorly where they are more strongly foveolate but are not depressed; suture between the scutum and scutellum with three strong longitudinal rugae; scutellum shining, with a few fine punctures; dorsal aspect of the propodeum coarsely reticulate and not separated from the posterior aspect which is also coarsely reticulate; mesepisternum reticulate, more strongly so anteriorly, with a rather small, shining, punctured spot on the posterior part; sides of the propodeum strongly reticulate; first tergite coarsely, longitudinally striato-reticulate, the striae predominating, no complete, well defined median stria; second and third tergites sculptured similarly to the first, but not so strongly so; the apex of the third tergite almost impunctate and shining, as are the following tergites.

Black; palpi pale brown; mandibles, scape, pedicel, tegulae in part, rufo-ferruginous; legs ferruginous; wings hyaline, iridescent, venation pale brown, stigma dark brown.

Chain Bridge, District of Columbia. Described from one female recorded under Bureau of Entomology Number Hopk. U. S. 10219a, collected by Mr. C. T. Greene and reared from species of *Agromyza*. A paratype from Ithaca, New York.

Type.—Cat. No. 16474, U. S. N. M.

New American Diptera.

By J. R. Malloch.

The species included in this paper are described from types in the Academy of Natural Sciences, Philadelphia.

Hydrotaea cressoni, new species.

Male.—Glossy black, with a distinct bluish tinge. Frontal lunule, face and eye margins beneath level of antennae silvery pollinose. Proboscis and palpi black. Mesonotum without any indications of stripes or pollinosity. Abdominal segments 3, 4 and 5 with a very distinct, elongate, anterior marginal spot on each side, forming an interrupted white fascia on each segment. Legs black. Wings clear. Calyptrae white, margins and fringe yellowish. Halteres yellow.

Eyes distinctly, but not thickly, pubescent; frontal stripe narrow; third antennal joint not twice as long as second; arista with an elongate swelling at base, microscopically pubescent; cheeks linear, bristles numerous and moderately strong; palpi elongate, with numerous hair-like bristles.

Two pairs of presutural and four pairs of postsutural macrochaetae on mesonotum; acrostichals indistinguishable from the rather long discal hairs.

Fore femur with a short, sharp, forwardly directed tooth at about apical fourth on the postero-ventral surface, on the base of which, on the posterior side, are 2 bristles; antero-ventral surface with an elongate, ridge-like callosity slightly nearer to base of femur; bristles at base on postero-ventral surface very long, decreasing in length to middle; beyond the postero-ventral thorn there are 2-3 short bristles on same surface; fore tibia attenuated at base, hollowed out on ventral surface, the postero-ventral margin with a slightly raised ridge on middle; one long bristle on apical third of postero-ventral surface, one, shorter, on dorsal surface nearer to apex and another short one at apex on almost the posterior surface; fore metatarsus as long as next 3 joints. Mid femur thin, slightly curved, and except at near base almost bare; mid tibia without any bristles. Hind femur elongated, reaching slightly beyond apex of abdomen, curved, and slightly dilated on beyond middle; ventral surface with two short, closely approximated thick thorns, which have the tips dilated; anterior surface with a row of bristles which become longer and stronger, are more widely placed and descend slightly as they approach apex of femur; postero-ventral surface bare; hind tibia curved, apically becoming slightly thicker, and four-fifths as long as femur; ventral surfaces on apical half with numerous closely placed hair-like bristles which are at middle rather more than equal in length to the tibial diameter, and rapidly decrease in length to apex; dorsal bristle very long; antero-dorsal surface with a series of short bristles from base to upper antero-dorsal bristle.

Wings with veins 3 and 4 slightly convergent; last section of fourth vein 2½ times as long as penultimate section. Calyptrae with the lower scale distinctly protruding. Length 4.5 mm.

Holotype: Cloudcroft, New Mexico, May 24, 1902, (H. L. Viersck). Type No. 6053.

Allied to *ciliata*, Fabricius, but the absence of the very long mid femoral apical bristles, so conspicuous in that species, readily distinguishes it from *ciliata*.

Pseudostenophora bispinosa n. sp.

Female.—Black, subopaque. Antennae, tibiae and tarsi brownish-yellow. Wings slightly grayish. Halteres yellow, knob black-brown.

Frons twice as broad as long; second row of bristles straight, one pair of bristles only in first row; antennae normal in size; arista nearly twice as long as width of frons, distinctly pubescent; palpi

slightly larger than third joint of antenna, with several end bristles; proboscis thickened and enlarged, almost identical in form with that of *Aphiochaeta rostrata* Brues.

Mesonotum with 1 pair of dorso-centrals; scutellum with 2 bristles. Abdomen almost bare, anal organs hairy.

Fore tibia with 1 dorsal bristle before the middle; mid tibia with the normal 2 on basal third very weak, and the one at apex not distinguishable; hind tibia without any bristle, or with a weak one on antero-dorsal surface before middle.

Costa to about three-fifths the wing length, first division equal to 2 plus 3, 3 about three-fourths as long as 2; fourth vein leaving third at about midway from fork to apex with a very decided curve (as in *Trupheoneura vitrinervis* Malloch) and ending almost at wing tip; seventh vein less distinct than the others, but complete; costal fringe fine and close, its length equal to about twice the diameter of costal vein. Length 1.5 mm.

Holotype ♀, Westville, New Jersey, April 11, 1900. Type No. 6054.

Paratypes: 6 specimens with same data.

I consider that this species belongs to the genus in which I have placed it rather than to *Trupheoneura* with which it has certain affinities. The species in the latter forms have the seventh vein interrupted except in the case of the female of *lugubris* Meigen, which has that vein complete, but indistinct. There is a close resemblance between certain species in *Trupheoneura* and others in *Pseudostenophora,* but so far as I have seen the following set of characters may be relied upon to distinguish the species of the latter forms from all other Phorid genera: Frons much broader than long; mesonotum with 1 pair of dorso-centrals; scutellum with 2 bristles; male hypopygium large, but without any projecting anal organ and not highly chitinised as in *Trupheoneura*; legs with generally the following bristles: 1 on fore tibia, 2 weak ones at basal third of mid tibia, and occasionally a weak one at apex, and the hind tibia never with more than one bristle; third vein of wing forked.

This is the first species of the genus that I have seen from America.

Paraspiniphora pennsylvanica n. sp.

Male and female.—Black, shining. Knee joints yellowish. Halteres yellow. Wings slightly browned.

Frons glossy, distinctly broader than long, the surface with numerous short hairs; first and second rows of (4) bristles almost straight; one pair of post-antennals present; male antennae enlarged, third joint about half as large as eye; female antennae slightly enlarged, third joint about one-third the size of eye; arista bare, its length about equal to 1½ times the width of frons; palpi and proboscis in both sexes normal, the former moderately bristled; one very long, downwardly directed bristle on cheek in both sexes.

Mesonotum with 1 pair of dorso-centrals; basal pair of scutellar bristles much weaker than apical pair in both sexes.

Abdomen almost bare; male hypopygium with numerous hairs.

Fore tibia with 3-4 serial bristles on dorsal surface from base to apex; mid tibia with 3 antero-dorsal bristles, 2 on basal half and one near apex, and 4-5 on almost the dorsal surface from base to apex; hind tibia with generally 10 bristles, 5 on the dorsal and 5 on the antero-dorsal surfaces, arranged in pairs, besides the apical spurs; no ventral bristles present on either of the posterior pairs to tibia.

Costa to middle of wing; first division about 1 1-3 times as long as 2 plus 3, 3 half as long as 2; fourth vein slightly bent at base, leaving just beyond fork of third and ending almost in fore margin of wing owing to its gradual forward inclination; one strong bristle present on base of third vein; costal fringe close and fine, equal in length to about twice the diameter of costal vein. Length 3-4 mm.

Holotype: ♀, Swarthmore, Delaware County, Pennsylvania, March 30, 1905 (E. T. Cresson, Jr.). Type No. 6055.

Paratypes: 1 male and 1 female same data.

Resembles *spinosissima* Strobl, and *spinulosa* Malloch, but differs in chaetotaxy from both.

Aphiochaeta submanicata n. sp.

Male.—Yellow, slightly shining. Frons brown, surface with grayish pollinosity; antennae brownish yellow, arista brown; palpi clear yellow. Mesonotum reddish yellow on disk; pleurae yellow, with a large blackish patch below wing base; postnotum black-brown. Abdomen black-brown on dorsum; basal segment yellowish at base; each segment with but slight indications of a pale posterior margin; anal protuberance and hypopygium yellow. Legs yellow, mid coxa with a black streak on posterior surface; apices of hind femora blackened. Wings clear; veins brownish, very distinct except at apices of thin veins. Halteres clear yellow.

Frons slightly longer than broad; lower post-antennals not half as large as the strong upper pair; central pair of bristles in first row slightly below level of upper post-antennals and nearer to them than to eye margin; outer pair in same row slightly higher placed than upper post-antennals and about as far from the central pair as from eye margin; antennae of moderate size; arista slightly longer than frons, slightly pubescent; palpi large, the size exceeding that of the third antennal joint, almost bare, the bristles very short.

Scutellum with 4 bristles; mesopleura with numerous short bristles.

Abdomen tapering; second segment slightly the longest, the others subequal; last 2 with numerous short discal hairs and a few longer posterior marginal hairs; second segment with several lateral hairs which are not very conspicuous; anal protuberance large, well exposed, the apex with the usual curved hairs.

Basal joint of fore tarsus about three-fifths as long as fore tibia, and slightly longer than joints 2 plus 3, much swollen, as thick as tibia; hind femur with soft hairs to middle on ventral surface; hind tibial setulae very weak and hair-like.

Costa to wing middle; first division slightly longer than second, and shorter than 2 plus 3, third division slightly less than half as long as second; fourth vein leaving at beyond fork of third with a slight bend and ending, recurved, at before wing tip; costal fringe equal in length to interior arm of fork (free end of vein 2). Length 1.5 mm.

Holotype: Frankford, Philadelphia, September, 1913, (J. R. Malloch). Type No. 6056. Taken indoors on window.

This species is allied to *projecta* Becker, but differs materially in wing venation. It shows a nearer approach to *magnipalpis* Aldrich in venation but differs in coloration and other characters from that species.

Leptocera (Limosina) subpiligera, n. sp.

Male.—Black-brown, slightly shining. Face and cheeks, distinctly whitish gray pollinose; pleurae, lateral margins of mesonotum narrowly, and abdomen on sides gray pollinose. Legs black-brown. Wings clear, veins black, vein 4 traceable to margin though not darkened beyond cross-vein, vein 5 not distinguishable beyond cross-vein. Halteres with yellow knob and darkened pedicel.

Frons entirely shining; all bristles strong, the two orbital bristles subequal in size, anterior to the lower one there are several short setulae; divergent ventral rows of setulae distinct, incurved; 5-6 in number, increasing in length from upper to lower extremities; face

buccate between antennae, slightly concave on middle, mouth margin not produced; cheek less than half as high as eye at its lowest part and gradually increasing in height posteriorly; vibrissa strong and long, incurved, behind the vibrissa there is an almost equally strong bristle which is upcurved and reaches almost to middle of eye. Marginal bristles distinct and not particularly numerous; mouth opening large, labrum slightly protruding, proboscis broad, at apex sucker-like, short; palpi small, with a few weak bristles; antennae rather above the average size, standing well clear of the eyes, third joint pilose, broader but barely longer than second, which has on the inner side at apex several distinct setulae; arista tapering, basal joints distinct, but slightly thickened; pubescence sparse, distinct from slightly beyond base, arista in length equal to from its base to vertex; eye bare, distinctly longer than high.

Mesonotum with posthumeral bristle strong, incurved; three pairs of dorso-centrals present; acrostichals distinct from near anterior margin, between them and the anterior dorso-central there are 3-4 rows of short discal setulae; scutellum with eight marginal bristles as in *fontinalis* Fallen, disk bare; postnotum glossy black.

Abdomen shorter than thorax, cylindrical in shape; second segment much elongated, the others short, all segments with numerous hairs, which are particularly noticeable, long and bristle-like laterally on apical segments; hypopygium rounded, large, knob-like, its surface, particularly on venter, covered with numerous rather long hairs.

Legs strong; fore tarsi gradually and distinctly dilated from base to apex; mid-tibia with seven dorsal bristles (2:2:3) and 1-2 on ventral surface; mid-trochanter with a strong bristle; apex of mid-metatarsus with 3-4 end bristles; hind femur with a series of 5-6 bristles on apical half of antero-ventral surface; hind tibia with four rows of hair-like bristles, one on almost the ventral surface from base to apex, which is longest on middle, one rather shorter on anterior surface which is rather longest at base, one on dorsal surface consisting of 6-7 rather widely placed bristles, and a fourth much shorter on the postero-dorsal surface which is regularly and rather widely spaced and becomes longer toward apex; hind tarsus thickened, joints about, 2:3:1½:1:2.

Wings with costa to end of vein 3, second costal division 1 2-3 times as long as third; costa setulose to end of first vein; outer cross-vein distinctly before the vertical line of apex of vein 2, the section of vein 4 between cross-vein equal to basal section of vein 3; outer cross-vein about half as long as section of vein 4 preceding it; last section of vein 3 slightly but gradually and appreciably bent forward.

Length, 2½ mm.

Holotype, male, Hazleton, Pa., August 7, 1909, (Dr. Dietz), Type No. 6057.

Paratype: 1 male with same data.

This species comes close to both *piligera,* Stenh., and *zosterae* Haliday, but differs in venation from both of those species.

Mantis religiosa Linnaeus, in Rochester, New York, in 1913 (Orthop.)

One day, early in September, while collecting some *Colias philodice,* etc., I was amazed to find a large female mantis. I would not have observed it had it not been for a *Xylocopa virginica* which I was transferring from my net to the killing bottle, and in doing so, knelt on the ground. This must have aroused the mantis from its hiding place. Being unaware of its habits, I picked up the specimen, but dropped it just as quickly, being pierced by the fore legs, which gave me a swollen finger for several days. The females hide under long grasses, etc., and to collect them they must be aroused from their hiding places.

They vary greatly in color. Some individuals are almost gray, while others are green, yellow, pale brown or dark brown.

The males resemble a katydid in their flight, and differ very greatly from the females in regard to habits. They can be found flying from bush to bush, but are by no means common.

The species interested me so much that I wrote to Mr. A. N. Caudell, U. S. Nat. Mus., Washington, D. C., for its identification, etc. It proved to be *Mantis religiosa* L., introduced into this vicinity some years ago. As it is an insect of predaceous habits, eating other insects, etc., it should be therefore protected. A few beneficial insects may be destroyed by it, but, on the whole, it is to be regarded as a friend.

After becoming aware of their habits, I had no trouble in finding them in considerable numbers. In all, I must have taken 200 or more, two-thirds of which are females. The males are very slender, and resemble *Stagmomantis carolina* very closely, being about 1¾ to 2 inches in length. The females measure from 2¼ to 2½ inches, and are much stouter in form.

I found a small quantity of egg-masses generally attached to the weeds or grasses, within two or three inches from the ground. They measure from 1¼ to 1¾ inches in length. I shall try to raise these and take all possible notes. Should I be fortunate enough to get the complete metamorphosis, I will publish the results for the sake of some of our collectors.—ROBERT SCHMALTZ, 319 Central Park, Rochester, N. Y.

ENTOMOLOGICAL NEWS.

PHILADELPHIA, PA., APRIL, 1914.

The Ethics of Publication.

Several times during the past three years articles accepted for publication in the NEWS have appeared in other journals, subsequent to the date of acceptance here but before they could be published in this magazine. From the fact that the NEWS has been receiving material months in advance of the possibility of publication, we assume that it is a not unwelcome outlet of communication for entomologists. With such a bounteous supply, justice to our contributors suggests that we must publish accepted articles as nearly as possible in order of reception, after the current month's reviews and records of literature have been provided for. The enforced delay chafes some eager authors and exposes them to the temptation of offering their already accepted productions to other media less crowded at the moment, without advising us of their intentions. It is a marvelous thing, only appreciated in its full force by an editor, how nearly unanimous authors are as to the all-importance of their writings and how serious will be the damage to the world at large if each article be not published within one week of its reception by the aforesaid editor.

Irrespective of the question as to the value of the entomological articles that are published, it is true, at present, that the production exceeds the means of publication. It is, therefore, not economical to publish the same article in two journals. The space occupied by the repeat were better devoted to something else. The NEWS does not intentionally publish that which has already appeared elsewhere, except in the case of brief notes or announcements. An author who publishes in two places an article not coming under these exceptions, is the thief of space, as well as of time, and excludes his fellow from the opportunity which his repeat usurps.

Fragments on North American Insects—VI.

By A. A. GIRAULT, Nelson (Cairns), Queensland, Australia.

(Also on pages 148, 155, 167.)

Proctotrypoids With Wings Folded Upon Emergence (Hym.)

From a note made in August, 1899, it appears that a species of Scelionidae was obtained from some lepidopterous eggs brought in from the field which upon emerging had the wings folded, later spreading as usual.

Callosamia promethea Drury (Lepid.)

A number of cocoons of this species taken at Annapolis, Maryland, February, 1900, and confined indoors at nearly normal temperature (in an attic), commenced to give forth adults on May 8 following. The cocoons were found in forest trees and wild cherry.

Entomological Literature.

COMPILED BY E. T. CRESSON, JR., AND J. A. G. REHN.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species, will be recorded. The numbers in **Heavy-Faced Type** refer to the journals, as numbered in the following list, in which the papers are published, and are all dated the current year unless otherwise noted, always excepting those appearing in the January and February issues of the News, which are generally dated the year previous.

All continued papers, with few exceptions, are recorded only at their first installments.

The records of systematic papers are all grouped at the end of each Order of which they treat, and are separated from the rest by a dash.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington.

3—The American Naturalist. **4**—The Canadian Entomologist. **8**—The Entomologist's Monthly Magazine, London. **9**—The Entomologist, London. **21**—The Entomologist's Record, London. **22**—Zoologischer Anzeiger, Leipzig. **35**—Annales, Societe Entomologique de Belgique. **36**—Transactions, Entomological Society of London. **37**—Le Naturaliste Canadien, Quebec. **40**—Societas Entomologica, Zurich. **50**—Proceedings of the U. S. National Museum. **65**—La Feuille des Jeunes Naturalistes, Paris. **74**—Naturwissenschaftliche Wochenschrift, Berlin. **84**—Entomologische Rundschau. **87**—Bulletin, Societe Entomologique de France, Paris. **90**—Revue Scientifique, Paris. **92**—Zeitschrift fur wissenschaftliche Insektenbiologie. **97**—Zeitschrift fur wissenschaftliche Zoologie, Leipzig. **143**—Ohio Naturalist. **153**—Bulletin, American Museum of Natural History, New York. **155**—Nova Acta Academiae Cae-

sareae Leopoldius Carolinae Germanicae Naturae Curiosorum, Halle. **159**—Bollettino, Laboratorio di zoologia generalé e agararia della R. S. Superiore d'Agricoltura in Portici. **164**—Science Bulletin, University of Kansas, Lawrence. **173**—Die Grossschmetterlinge der Erde, Fauna Americana, von A. Seitz, Stuttgart. **174**—Bulletin, U. S. National Museum, Washington. **175**—Aus der Natur, Berlin. **200**—Bulletin Scientifique de la France et de la Belgique, Paris. **205**—Kansas State Agricultural College, Experiment Station. **216**—Entomologische Zeitschrift, Frankfurt a. Main. **274**—Archiv fur Zellforschung, herausgegeben von Dr. R. Goldschmidt, Leipzig. **279**—Jenaische Zeitschrift fur Naturwissenschaft. **310**—L'Echange, Revue Linneenne, Moulins. **311**—La Science au XXe Siecle, Paris. **324**—Journal of Animal Behavior, Cambridge. **332**—Bulletin of the Southern California Academy of Sciences, Los Angeles. **368**—The Monthly Bulletin of the State Commission of Horticulture, Sacramento. **394**—Parasitology, Cambridge, England. **399**—Proceedings of the Cambridge Philosophical Society, Cambridge, England. **407**—Journal of Genetics, Cambridge, England. **409**—Journal of the Academy of Natural Sciences of Philadelphia. 2nd Series. **427**—Hawaii Board of Commissioners of Agriculture and Forestry, Honolulu. **438**—Bulletin of the Illinois State Laboratory of Natural History, Urbana. **442**—Transactions of the Connecticut Academy of Arts and Sciences, New Haven. **462**—The Butterfly Farmer, Truckee, Cal. **463**—Bulletin of the U. S. Department of Agriculture, Washington, D. C. **464**—Flora og Fauna, Copenhagen. **465**—Sitzungsberichte der Naturforschenden Gesellschaft zu Leipzig. **466**—Handbuch der Entomologie. Herausgegeben von Dr. Chr. Schröder, Jena. **467**—Zoologische Jahrbucher. Abteilung fur Systematik, Geographie und Biologie der Tiere, Jena. **468**—Annales de l'Ecole Nationale d'Agriculture de Montpellier. **469**—Annual Report and Transactions, Manchester Microscopical Society. **470**—Bulletin, Department of Agriculture, Trinidad and Tabago. **471**—Nova Scotia Department of Agriculture.

GENERAL SUBJECT. Bachmann, M.—Insekten und blumen, **216,** xxvii, 271-72 (cont.). **Bervoets, R. E.**—Contribution a l'etude du vol des insectes. Etude du pterostigma, **35,** lviii, 6-17. **Bordage, E.**—Notes biologiques recueillies a l'Ile de la Reunion, **200,** xlvii, 377-412. **Deegener, P.**—Muskulatur und endoskelett, **466,** i, 481-528. **Eckstein, K.**—Die metamorphose der insekten als gegenstand des unterrichts, **175,** 1914, 237-46. **Handlirsch, A.**—Aus der geschichte der entomologie. Ueber entomologische literatur und ihre benutzung. Zur entomologischen technik. Die systematischen grundbegriffe. Nomenklatur, typen und zitate. Terminologie der

fur die systematik wichtigsten teile des hautskelettes, **466,** iii, 1-112. **d'Herculais, J. K.**—Capture des insectes par les fleurs des composees notamment par celles de Bardane, **87,** 1913, 485-6. **McGlashan, X.**—Pioneer entomologists of California, **462,** i, 99-100. **Pic, M.**—Doit-on nommer ou non les varietes, **310,** 1913, Dec. (separate of 4 pp.). **Picard, F.**—Les champignons parasites des insectes et leur utilisation agricole, **468,** xiii, 121-248. **Rivers, James J.**—Obituary by F. Grinnell, Jr., **332,** xiii, 16-17. **Rudow, Dr.**—Massenhaftes auftreten von insekten, **216,** xxvii, 263-65 (cont.). **Turner, H. J.**—The terminology of variation, **21,** 1913, 303-4. **Vestal, A. G.**—An associational study of Illinois sand prairie, **438,** x, 1-96. **Watson, J. B.**—A circular maze with camera lucida attachment. (Applicable to entomological research.) **324,** iv, 56-59. **Weiss, F. E.**—Species, varieties and hybrids, **469,** 1912, 42-50.

ARACHNIDA, ETC. **Hindle & Cunliffe.**—Regeneration in Argas persicus, **394,** vi, 353-71. **Robinson & Davidson.**—The anatomy of Argas persicus, **394,** vi, 382-420.

Cunliffe, N.—Rhipicephalus sanguineus: variation in size and structure due to nutrition. Observations on Argas brumpti, **394,** vi, 372-78, 379-81. **Emerton, J. H.**—New and rare spiders from within fifty miles of New York City, **153,** xxxii, 225-260. New England spiders identified since 1910, **442,** xviii, 209-224. **Ewing, H. E.**—New Acarina. General considerations and descriptions of n. sps. from Minnesota, Wisconsin and Michigan, **153,** xxxii, 93-122. **Gunthorp, H.**—Annotated list of the Diplopoda and Chilopoda, with key to the Myriapoda of Kansas, **164,** vii, 159-182. **Silvestri, F.**—Novi generi e sp. di Koeneniidae, **159,** vii, 211-17.

APTERA AND NEUROPTERA. **Assmuth, J.**—Termitoxenia assmuthi, Anatomisch-histologische untersuchung, **155,** xcviii, 187-316. **Shull, A. F.**—Biology of the Thysanoptera, **3,** xlviii, 161-176 (cont.). **Simroth, P.**—Ueber eine verwandtschaftsbeziehung zwischen Trichopteren und Lepidopteren, **465,** 1911, 9-21.

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Cecidomyiidae, by J. J. Kieffer, Genera Insectorum, Fascicle 152, pp. 346, pls. 15, 1913.

This comprehensive work lists some 2500 species and 330 genera from all parts of the world. It is more than a list of the species, since it is a generic synopsis and contains keys for the separation of the various groups. It is well printed, the plates are admirably executed and the copious three-column index, occupying 19 quarto pages, makes the contents most accessible. The work has been prepared by one who has spent years of productive labor upon the group and has probably seen more genera and species of gall midges than any one else. The classification in this generic synopsis and list of species should therefore represent the latest and most advanced taxonomic ideas. The following tabulation gives the author's arrangement in outline and may be advantageously scrutinized:

Synopsis of Kieffer's Catalogue of Cecidomyiidae.

Subfamilies and Tribes	Number of Genera	Number of Monotypic Genera	Number of Species
Cecidomyinae	285	176	2302
Lasiopterariae	16	6	231
Oligotrophiariae	49	34	678
Asphondyliariae	16	9	171
Brachyneuriariae	22	13	44
Cecidomyiariae	157	104	991
Porricondylariae	25	10	187
Lestreminae	32	19	185
Campylomyzariae	24	14	151
Strobliellariae	1	1	1
Lestremiariae	7	4	33
Heteropezinae	14	11	28
Grand Total	331	206	2515

The subfamilies remain about as they have been in recent years. There are some changes in the Cecidomyinae with which we are not in full sympathy. One is the combination of the Dasyneuriariae with

the Oligotrophiariae. This earlier separation was one we found very convenient and, on the whole, satisfactory, though there are some intermediate forms which are not easily placed. The occurrence of the latter by no means invalidates the division, since as our knowledge increases other perplexing genera will doubtless be discovered. The raising of *Brachyneura* Rond. to tribal rank and its placement with the Cecidomyinae, all turn on the characteristics of *B. fuscogrisea* Rond., the generic type. We have been able to discover no evidence that this form possesses circumfili, and the latter certainly is not true of American species we have referred to *Brachyneura*. Granting for a moment that this genus possesses the structures and is properly located and raised to tribal rank, we are then confronted by the fact that the author has placed here such genera as *Kronomyia* Felt and *Haplusia* Karsch, forms without circumfili. The tribe, as given in this synopsis, contains some discordant elements.

We heartily endorse the reference of *Aplonyx* De Stefani to the Lasiopterariae and dissent somewhat to the inclusion in this tribe, of *Camptoneuromyia* Felt, a somewhat synthetic genus with, it seems to us, more affinities with the Oligotrophiariae (our Dasyneuriariae) of this list. The separation of *Prolasioptera* on account of the entire ventral plate, and particularly because of the dorsal group of chitinous hooks on the apex of the ovipositor, does not seem justified, in view of the fact that this combination of characters is not constant in American forms, and especially as the peculiar hooks appear in species referable to both *Lasioptera* and *Neolasioptera*. We likewise confess skepticism as to the validity of *Meunierella* Kieff., at least so far as indicated by the American species the author referred to this genus.

The Oligotrophiariae of this list comprise a large number of genera and introduce some radical departures from the earlier classification. We find *Rhopalomyia* Rubs. restricted to forms possessing recticulate circumfili and uniarticulate palpi. The reduction of the palpi indicates within certain limits the degree of specialization, though it happens that in the American forms there is such evident diversity in these organs that we can not bring ourselves to believe such close division advisable, since a rigid application of this rule might, with certain American species, necessitate the referring of one-half of an insect to *Misopatha* Kieff. and the other to *Panteliola* Kieff., though we readily admit that in many instances the number of palpal segments is a character of great value in separating allied genera. In practice we have been unwilling in *Rhopalomyia* and its allies, to separate species simply because of a divergence in the number of palpal segments, and have always looked for some confirmatory character. A similar condition obtains, so far as American forms are concerned, in the

reference to a new genus, of a number of species of *Asphondylia* because of the uniarticulate palpi. In the Porricondylariae we have an analogous condition in the author erecting *Winnertziola* upon characters which, in American forms, have proved inconsistent in their association, and we consequently believe that this name must become a synonym of *Winnertzia*.

In connection with generic limitation we find, on referring to the above tabulation, that nearly two-thirds, namely, 206, of the genera listed are monotypic. This very large proportion is undoubtedly due in part to the fact that a number of these genera represent forms from countries where the fauna is comparatively unknown, such as Africa and India. Greater familiarity with the gall midges in these regions will undoubtedly show that some of these monotypic genera are representatives of considerable series. Eliminating these from consideration, we would raise a question on general principles as to the advisability of adopting a classification which necessitates so many monotypic genera. Our familiarity with American forms indicates that some of these later divisions must be relegated to synonomy. The disposition of such genera in faunae with which we are unfamiliar can be determined only by a careful study of the material. Excessive division can be easily remedied by consolidation later, and we must certainly credit the author with an honest endeavor to outline the facts as they appear to him. In this connection we would simply voice a sentiment in favor of proposing generic names, only so far as may be necessary for the recognition of well marked groups, rather than the establishment of new concepts simply to indicate minor variations. The many and varied forms of gall midges emphasize the need of conservatism along these lines.

The author, in some instances, specifies the generic type, while in other cases the matter is ignored. We regret an apparent tendency to reduce some of the older genera to synonymy by grouping species under later names. This is a matter where the student must use his judgment to a considerable extent. We have favored wherever possible, the policy of validating and establishing the older generic names, because such procedure tended to reduce the synonyms now so burdensome in many groups. We find a curious condition respecting *Trotteria*, a genus originally defined in 1892 by Rubsaamen as *Choristoneura*. The only species mentioned at the time was *obtusa* Lw. This genus being preoccupied, a new name was proposed in 1897 by Kieffer and three species mentioned, one of which (not the one before the original author of the genus) is cited as type. This we believe to be irregular and a procedure not warranted by the International code.

The author has made an attempt to define the subfamily, tribal and

generic characters of the larvae. He has done more along this line than any one else, and his efforts in this direction warrant the heartiest approbation. It is at best a difficult subject.

Aside from general taxonomic matters outlined above, we must call attention to the occurrence of numerous typographical and clerical errors, a portion of which are probably attributable to the printer. These, while annoying and involving additional labor for the users of the list are, for the most part, readily eliminated. Without attempting to call attention to all the errors, we would simply state that on page 23, *Neolasioptera squamosella* and *N. subsquamosa* are *nomina nuda,* the first being based on an erroneous citation, and the second partly due to the writer's inadvertence in allowing the letters "n. sp." to remain after a detailed characterization of a species established originally in a tabulation. The identity of our numbers, if the two had been compared (which should certainly have been done prior to the proposing of a new name), should have indicated a probable identity to the compiler. A similar blunder is perpetrated in the proposal of *N. agrostidis,* for which the writer is likewise partly responsible. There are some inconsistencies in forms of citation. The author fails to distinguish in all cases between the pagination of separates and entire works; volume or bulletin numbers are sometimes transposed, and there is an occasional orthographical error, the latter apparently being relatively scarce.

The generic references of American species represent, in the main, conditions obtaining in 1908, a period when our classification was in a tentative form. Later studies have resulted in the erection of some new genera, with consequent division of species and, in a number of instances, the compiler has not obtained access to the later data. In spite of these defects, all minor in character, this work must prove of great service to all interested in the general study of gall midges, and the author, in its compilation, has laid his associates under heavy obligations.—E. P. Felt.

Doings of Societies.

AMERICAN ENTOMOLOGICAL SOCIETY.

Meeting of October 23, 1913. Dr. Calvert, President, in the chair. Eight persons were present. The President announced the deaths of Dr. Horace Jayne and Prof. P. R. Uhler, members of the Society.

Mr. Rehn made some remarks on the results of three Orthoptera-collecting trips to the Florida Keys and extreme southern

Florida, made in January, 1904, March, 1910, and July, 1912, by Mr. Hebard and himself. The chief object of these trips was, in addition to securing a representative collection of the Orthoptera of the region, to determine to what extent the region was a meeting ground for tropical types and forms of more northern distribution, by ascertaining what West Indian types were present, what proportion of the whole Orthopteran fauna they constituted and similar data regarding the forms of mainland relationship. The periods of greatest and least activity in animal life were also selected to determine the extent of the seasonal difference in species and abundance of species. An analysis of the distribution of the 108 species secured (all previously recorded from the Keys having been obtained) showed that the range of thirty-one species of northern affinity and distribution had been extended to the extremity of the Florida mainland, of four to the pine keys and of twenty-nine to the scrub keys. Seven West Indian types were recorded from the United States for the first time and more complete data were secured on six species of similar relationship which had been recorded on bare captures. Specimens illustrated the additions to our fauna.

Mr. Laurent exhibited a series of fifteen male specimens of the first brood of *Pieris rapae,* selected from sixty specimens captured from April 19 to May 6, as well as a series of fifteen male specimens of the second brood, selected from a like number of specimens collected from July 10 to 31. The speaker stated that the maculations in the first brood averaged much smaller than those in the second brood, in some cases being entirely wanting, thus representing the variety *immaculata.* In the first brood, the under side of the inferior or hind wings is nearly always of a dark gray or yellow color; while in the second brood, the color is generally light gray or almost white. However, this only holds good with the males, as females of both broods may have the under side of the inferiors yellow. All the specimens were collected in the outlying districts of Philadelphia.

Dr. Skinner exhibited a new species of *Argynnis* from Utah,

subsequently described in *Entomological News* for December, 1913, page 450.

Dr. Calvert exhibited some Neuropteroid insects (exclusive of Odonata) which he had collected in Costa Rica. They were determined by Mr. Nathan Banks and included a new species of Chrysopid.

The annual meeting was held December 8, 1913, Dr. Calvert, President, in the chair. The annual reports were read.

The following was directed to be recorded in the minutes:

Mr. Ezra T. Cresson resigned the chairmanship of the Publication Committee of the Society, after having been a member of this body for more than fifty-two years, and for the greater part of this period its chairman.

This duty involved that of the editorship of the *Proceedings of the Entomological Society of Philadelphia* and the *Transactions of the American Entomological Society*. During the entire period these publications have been carried on in an admirable way that leaves nothing to be desired, and they speak for themselves. His reward must have been derived from the pleasure of the work and the unselfish rendering of service, as he received no other compensation. Nowhere does his name appear as Editor in the forty-five volumes that have appeared under his guiding hand. These volumes largely represent the history of entomology in America and in the future, when tribute is rendered to those who did pioneer work, no one will receive or deserve more praise than the Founder and Treasurer of the American Entomological Society, the great systematist of the Hymenoptera and the Editor of the *Transactions* of this Society. Such a long period of devotion to any cause is the exception to the rule and this Society desires to put on record its deep sense of obligation for this splendid achievement, of our honored and esteemed member.

The annual election for officers was held and the following were declared elected: *President,* Philip P. Calvert; *Vice-President,* Henry W. Wenzel; *Treasurer,* Ezra T. Cresson; *Curator,* Henry Skinner; *Corresponding Secretary,* James A.

G. Rehn; *Recording Secretary,* Henry Skinner; *Librarian,* Ezra T. Cresson, Jr.; *Executive Committee,* Philip Laurent, Henry W. Wenzel and David M. Castle; *Finance Committee,* Chas. S. Welles, David M. Castle, Morgan Hebard; *Publication Committee,* James A. G. Rehn (Chairman), Ezra T. Cresson, Henry Skinner.—Henry Skinner, *Recording Secretary.*

Meeting of February 26, 1914. Dr. Philip P. Calvert, President, in the chair. Eight persons present, including Mr. W. T. Davis, of Staten Island.

Notice was read of the death, on the 24th inst., of Charles S. Welles, a member.

Mr. Rehn made reference to the species of the orthopterous genus *Orphulella* occurring on the eastern coast of North America, mentioning the peculiar distribution of *O. olivacea* on the coast as far south as the middle of Florida and again occurring on the Gulf coast, while on the south Florida and Mexican coasts, another species takes its place. He also remarked on the distribution of the genus *Chortophaga* in the United States and West Indies. He also reported the occurrence of a Yucatan species of Orthoptera in Florida. Discussion followed on the difference in the species occurring in South and North Florida, and on some of the peculiarities in the fauna and flora of South Florida.

Mr. Davis said that the dragonflies, especially on the west coast of Florida, were quite a nuisance to collectors on account of their catching many of the smaller butterflies that were disturbed.

Dr. Calvert referred to Prof. Wheeler's recently published paper on Central American Acacia Ants in the Transactions of the Second International Congress of Entomology, commented on it, and showed alcoholic specimens of acacia and ants from Costa Rica, collected by himself.

Discussion followed a question put by a member, as to the proper geographical limits that should be adopted for a local collection for Philadelphia.

E. T. Cresson, Jr., *Secretary pro tem.*

OBITUARY.

Charles S. Welles.

Charles S. Welles died at 4.20 o'clock on the morning of February 24, 1914, at his home, the "Highland," Elwyn, Delaware County, Pennsylvania. His death was due to embolism. He was 67 years old.

Mr. Welles was the son of Charles Roger Welles, and was born in Springfield, Illinois, where his family were neighbors to Abraham Lincoln. For a time his father and Mr. Lincoln were associated in law practice.

He was graduated from Yale in the class of 1870. He was an active member of the Academy of Natural Sciences of Philadelphia, of which he was a life member; a member of the Pennsylvania Historical Society and a life member of the Delaware County Historical Society. He was interested in the Presbyterian Social Union of Philadelphia and a member of the Middletown Presbyterian Church, in Elwyn. His widow, who was Miss Maria Pancoast, of Village Green, and two daughters, Mrs. E. A. E. Palmquist, wife of a Cambridge, Mass., Baptist minister, and Miss Louise Ives Welles, survive.

Mr. Welles was elected to membership in the Entomological Section of the Academy of Natural Sciences, and in the American Entomological Society, in 1891, and the minutes of these bodies, as published in the early volumes of *Entomological News,* record his frequent participation in the meetings. He was chiefly interested in the Lepidoptera, but was always glad to aid those engaged in the study of any group of insects, as Mr. C. W. Johnson has intimated in his article in the *News* for March last, page 125. Mr. Welles was the author of an article on the "Destructive Work of *Daremma catalpae,*" in the *News* for December, 1898. For many years he served on the Finance Committee of the American Entomological Society. His fellow members tender their sincere sympathy to his family in our common loss.

P. P. C.

EXCHANGES.

Not Exceeding Three Lines Free to Subscribers.

☞ These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued

Wanted—North American specimens of the following European Heteroptera: *Dasycoris pilicornis* Burm.; *Gastrodes ferrugineus* Linne; *Gonianotus marginepunctatus* Wolff; *Microtoma atrata* Goeze; also the following: *Orsillus scolopax* Say: *Acantholoma denticulata* Stal; *Agrammodes costatus* Uhl. and *Galeatus peckhami* Ashm.—J. R. de la Torre Bueno, 14 Dusenbury Place, White Plains, New York.

Hydroporus and Deronectes—Species of these and allied genera wanted from all parts of the world, either by purchase or exchange. Specimens must be perfect, but not necessarily named.—John D. Sherman, Jr., 403 Seneca Ave., Mount Vernon, N. Y.

Lepidoptera—Prime specimens of butterflies from this section (either spread or papered) in exchange for other North American species new to my collection.—R. A. Leussler, 1137 So. 31st St., Omaha, Neb.

Wanted for Cash—Fertile eggs of *Attacus atlas*, *Attacus edwardsii* in season or for exchange for *Actias mimosae*, *Antheraea pernyi* and other exotic and native eggs.—A. J. Potter, East Killingly, Conn.

I have for exchange live pupae of *Ph. achemon*, *H. aurora*, *P. sexta*, *P. asterias*, *P. quinquemaculata*, *T. polyphemus*, *E. tityrus*, *chersis* and *A. octomaculata*, also lot of dupls. in papers from Europe. Wish pupae from Arizona, California or Mexico.—J. N. Lang, 1433 So. 59th Avenue, Cicero, Ill.

Urania riffius—Most beautiful exotic to exchange for other exotics or rare Catocolas of North America.—Jos. H. Reading, 1436 N. Rockwell St., Chicago, Ill.

Coccidae—California Coccidae exchanged for specimens from all parts of the world.—E. O. Essig, Secretary State Commission of Horticulture, Sacramento, Cal.

Wanted—Geometridae from the Southern, Middle and Western States. Offer in exchange liberal numbers of Texan Lepidoptera.—Dr. F. W. Russell, 4119 Cedar Springs Road, Dallas, Texas.

Wanted—Insect Life, Vol. V, No. 5, and Bibliography of American Economic Entomology, No. 4. Write offer.—Geo. M. Greene, 1303 N. 54th St., Philadelphia, Pa.

Miss Sarah Maul, 14 Channing St., N. W., Washington, D. C. Collector and breeder of Lepidoptera. Purchasers wanted.

The undersigned will greatly appreciate receiving records of New Jersey species not listed in Smith's Insects of New Jersey.—Harry B. Weiss, 272 Hale St., New Brunswick, N. J.

N. A. Coleoptera for Exchange—My list of over one thousand species of N. A. Coleoptera is now ready. If you wish to exchange, answer by sending me your list of what you have to offer.—Philip Laurent, 31 East Mt. Airy Ave., Philadelphia, Pa.

I offer for exchange a few perfect, bred specimens of *Vanessa gonerilla* in papers. Desire many common North American species of Lepidoptera, both Macro and Micro.—Fred Marloff, Box 104 Oak Station P.O., Allegheny Co., Pa.

Photographs of Entomologists Desired.

The Entomological Section of the Philadelphia Academy of Natural Sciences desires for its entomological album the photograph of every entomological student. The collection contains over 300 at this date. A list was published in the NEWS 1902, pages 45-47, of those in the album at that time. We hope that those who can do so will write their names and date of birth and the date when the photograph was taken on the back of each photo, along with any other information concerning themselves they may wish to impart.

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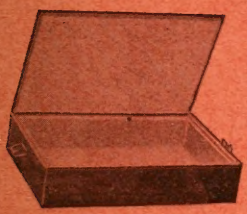

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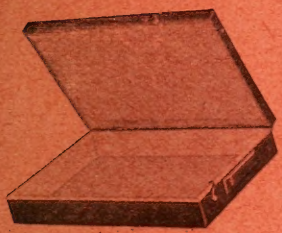

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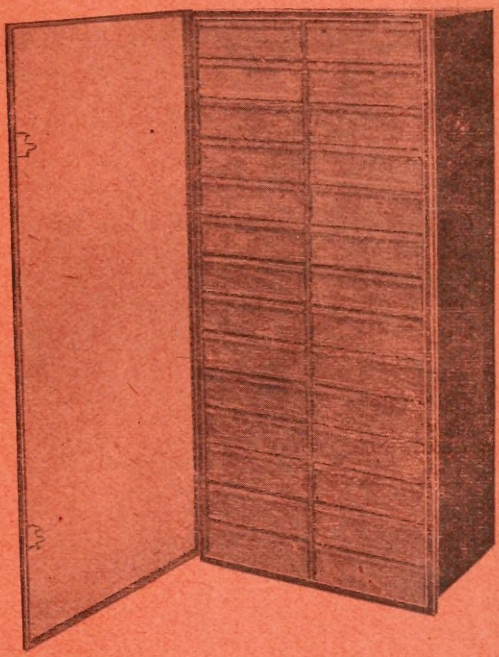

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